

In the chart on page 4 of the Office Action, the Examiner notes that this reference discloses a range of 0-10 wt% for Mn, which the Examiner states overlaps the range of 0.03-0.06 wt% Mn in the alloy of the present invention. The Examiner states that this raises a *prima facie* case of obviousness, and the Examiner refers to MPEP 2144.05 I in this regard.

However, as also noted in this same section of the MPEP, if the reference's disclosed range is so broad as to encompass a very large number of possible distinct compositions, this might present a situation analogous to the obviousness of a species when the prior art broadly discloses a genus. Applicants take the position that this applies to the present factual situation, i.e. the range of 0-10 wt% Mn in the JP '857 reference is so broad relative to the very narrow range of 0.03-0.06 wt% Mn in the present invention, that the present invention can be considered to be a species of the genus disclosed by the reference with respect to the Mn content. Applicants note that MPEP 2144.05 I, for this type of situation, refers to MPEP 2144.08, which in section I, indicates that when a single prior art reference which discloses a genus encompassing the claimed species or subgenus but does not expressly disclose the particular claimed species or subgenus, the Examiner should attempt to find additional prior art to show that the differences between the prior art primary reference and the claimed invention as a whole would have been obvious. Section II then sets forth factors to be considered in the event that such additional prior art is not found, and clearly states that the fact that a claimed species or subgenus is encompassed by a prior art genus "is not sufficient by itself to establish a *prima facie* case of obviousness."

Based on these considerations, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness of the presently claimed invention based on the disclosure of the JP '857 reference.

In responding to Applicants' previous arguments, the Examiner further states that if Applicants would like to argue unexpected results from the selection of a narrow alloy composition, evidence in a Rule 132 Declaration in comparison with the prior art is required.

However, this evidence is already of record in the present specification, and Applicants note that the Examiner should consider all rebuttal arguments and evidence presented by Applicants and it is "error not to consider evidence presented in the specification" (MPEP 2145).

In this regard, referring to the first full paragraph on page 2 of the specification, the Mn results in formation of AlMnFeSi dispersoid particles formed during homogenization, which act

as nucleation sites for  $\text{Mg}_2\text{Si}$  particles during cooling after homogenization. With a larger number of dispersoid particles, a higher number of  $\text{Mg}_2\text{Si}$  particles are formed, resulting in a reduced size of each particle. Fig. 1 of the application shows the dispersoid density with constant Mg and Si and Fe contents versus the Mn content. As shown in Fig 1, the higher the Mn content in the alloy, the greater the dispersoid density. This leads to smaller particle sizes of the  $\text{Mg}_2\text{Si}$  particles, inhibiting tearing of the profile and allowing for increased extrusion speeds (e.g. see the disclosure below Table 1 on page 4 of the specification). However, if the Mn content is too high, it will have an undesirable increase in quench sensitivity, as shown by Figs. 7 and 8 and the supporting data in the specification, reference in this regard being made to the disclosure beginning at page 6, line 34 and continuing over to page 8, line 12 of the specification.

Thus, Applicants have in fact demonstrated the criticality of the Mn content range of 0.03-0.06 wt% in accordance with the presently claimed invention, thus supporting its patentability (MPEP 2144.05 II).

For these reasons, Applicants respectfully submit that the presently claimed invention is clearly patentable over the JP '857 reference.

The rejection of claims 5, 7 and 8 under 35 USC §103(a) as being unpatentable over Parson et al. (US '359) in view of Ohyama et al. (US '090) is respectfully traversed.

As applicants have previously noted, US '359 corresponds to WO 98/42884 which is discussed in the present application on pages 1, 2, 5 and 8. The differences between the alloy as defined in claim 5 of the present application and US '359 is the content of Mg, which is 0.35 - 0.5 wt% according to the present invention and 0.2 - 0.34 wt% according to US '359, and in addition, the present invention specifies a more narrow range of Mn (0.03 - 0.06 wt%) compared to up to 0.15 wt% in US '359. If more than 0.06 wt% Mn is added to the alloys there is a negative effect on the quench sensitivity of the extruded profile, and thus the Mn level is between 0.03 wt% and 0.06 wt% for these alloys. This is not disclosed or suggested in US '359.

Applicants have already established the criticality of the upper limit of the amount of Mn, by referring to Figs 7 and 8 and the supporting data in the specification in the disclosure beginning at page 6, line 34 and continuing over to page 8, line 12.

The US '090 reference describes an aluminium alloy for wrought material where the alloy contains wide ranges of Mg and Si (both up to 5%). The alloy further contains a wide range of Mn between 0.01-1.2, and there is no disclosure or suggestion in this reference of the importance

of controlling the Mn level within a narrow range, i.e., between 0.03 - 0.06 wt% to obtain the advantageous AlFeSi intermetallic phases and AlMnFeSi dispersoid particles as described above, leading to the unexpected results discussed above with respect to the criticality of the upper limit of the amount of Mn in the alloy.

For these reasons, Applicants take the position that the presently claimed invention is clearly patentable over the applied references.

Therefore, in view of the foregoing remarks, it is submitted that each of the grounds of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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